

# **Automating Provider Reporting of Communicable Disease Cases using Health Information Technology**

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## **Introduction**

Disease surveillance is a core public health (PH) function, which enables PH authorities to monitor disease outbreak and develop programs and policies to reduce disease burden. To manage and adjudicate cases of suspected communicable disease, PH workers gather data elements about persons, clinical care, and providers from various clinical sources, including providers, laboratories, among others. Current processes are paper-based and often yield incomplete and untimely reporting across different diseases requiring time-consuming follow-up by PH authorities to get needed information. Health information technology (HIT) refers to a wide range of technologies used in health care settings, including electronic health records and laboratory information systems. Health information exchange (HIE) involves electronic sharing of data and information between HIT systems, including those used in PH. Previous research has shown that using HIE to electronically report laboratory results to PH can improve surveillance practice, yet there has been little utilization of HIE for improving provider-based disease reporting [1].

## **Methods**

Our study uses an intervention to electronically pre-populate provider-based communicable disease case reporting forms with existing clinical, laboratory and patient data available through one of the largest and oldest HIE infrastructures in the U.S., the Indiana Network for Patient Care. Evaluation of the intervention will be conducted utilizing mixed methods in a concurrent design framework in which qualitative methods are embedded within the quantitative methods. Quantitative data will include reporting rates, timeliness and burden and report completeness and accuracy, analyzed using interrupted time-series and other pre-post comparisons. Qualitative data regarding pre-post provider perceptions of report completeness, accuracy, and timeliness, reporting burden, data quality, benefits, utility, adoption, utilization and impact on reporting workflow will be collected using semi-structured interviews and open-ended survey items. Data will be triangulated to find convergence or agreement by cross-validating results to produce a contextualized portrayal of the facilitators and barriers to implementation and use of the intervention.

## **Results**

The intervention has been implemented in seven primary care clinics in the metropolitan Indianapolis area plus one rural clinic in Edinburgh. Analysis of baseline data shows that provider-based reports vary in their completeness, yet they contain critical information not available from laboratory information systems [2]. Furthermore, PH workers access a range of sources to gather the data they need to investigate disease cases [3].

## **Discussion and Conclusion**

By applying mixed research methods and measuring context, facilitators and barriers, and individual, organizational and data quality factors that may impact adoption and utilization of the intervention, we will document whether and how the intervention streamlines provider-based manual reporting workflows, lowers barriers to reporting, increases data completeness, improves reporting timeliness and captures a greater portion of communicable disease burden in the community. Early results are promising, and continued evaluation will be completed over the next 24 months.

## **References**

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